

DOCUMENT RESUME

ED 206 750

CS 206 328

AUTHOR Young, Joan C.
TITLE High School Elective English Programs and English Achievement.
PUB DATE [76]
NOTE 40p.; Research prepared at the University of Florida.
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academic Achievement; Conventional Instruction; Correlation; *Curriculum Design; *Educational Research; *Elective Courses; *English Curriculum; High Schools; High School Seniors; *Predictor Variables

ABSTRACT

A study of how participation in English elective programs affected student achievement was conducted in four Florida high schools, two with traditional and two with elective English programs. Subjects were 495 high school seniors who had attended their schools for at least three years. Subject variables included academic aptitude, sex, grade point average (both for English and for all subjects), and attitude toward English as a subject. School environmental variables included size of school, teacher experience and tenure, teaching load, and population demographics. Nine of the 15 independent variables correlated significantly with one dependent variable--English academic achievement. Twelve of the independent variables correlated significantly with seven or more of the other independent variables, making interpretations by multiple regression analyses more difficult. The most important inference drawn from the findings was that the structure of an English program in high school seems to have relatively little impact on achievement in English. That is, a student's cognitive growth in English would appear not to be predictable from participation in either an elective or a traditional program. Student's sex, academic ability, attitude toward the subject, and scholarship ("grade-making") were collectively the greatest predictors of cognitive growth in English. (RL)

 * Reproductions supplied by EDRS are the best that can be made
 * from the original document.

☒ This document has been reproduced as
received from the person or organization
originating it.

☐ Minor changes have been made to improve
reproduction quality.

• Points of view or opinions stated in this docu-
ment do not necessarily represent official NIE
position or policy.

High School Elective English Programs
and English Achievement

Joan C. Young

Associate Professor of Communications

Palm Beach Junior College

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Joan C. Young

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

Office: Palm Beach Junior College-North

2101 45th Street

West Palm Beach, FL 33407

305-842-3500

Home: 400 Rome Drive, R-103

Palm Springs, FL 33461

305-964-3238

High School Elective English Programs and English Achievement

A trend in secondary English education in the past two or more decades has been the offering of elective courses, permitting students in grades ten through twelve choices among a variety of courses of varied duration, in contrast to the traditional requirements of three years of "general" English. Courses offered in these "new" programs (usually called elective English programs) have ranged from literature courses focusing on theme ("Literature of Love") or genre ("The Novel") to language courses in vocabulary, dialectology, semantics, or grammar. These offerings, unlike traditional "electives," which are chosen in addition to the required English, fully satisfy graduation requirements in English.

In most cases, high schools which have reorganized their English offerings into an elective structure have done so as a result of the felt need to revitalize English as a subject: to make it more popular with the students, to make it more relevant to the students' needs and interests and abilities, and to increase teacher proficiency as a result of increased teacher interest and motivation (Applebee, 1974; Donlan, 1972; Graves, 1974; Hillocks, 1972; Kelly, 1972; Small, 1972). Many of these expectations have been realized and goals reached, according to both subjective and objective

evaluations (Carlsen & Conner, 1962; Di Stefano, 1974; Hillocks, 1972; Jaekle, 1967; Klang, 1964; Morton & Deidolori, 1971; Nushy, 1974; Smith, 1971; Weise, 1970; Williams, 1973).

There has been little sound research, however, of the effects of an elective English program on students' achievement of English skills and knowledge, especially that of students who are valid "products" of such a program, i.e., students who have been enrolled in a secondary elective English program for at least three years and students of diverse abilities and backgrounds. Gibbons' conclusions, for example, that "no significant difference in achievement in English usage" exists between traditional and elective groups and that "students in an all-elective English program perform as well in language and in literature as do students in a traditional" (1973, p.2742) are based on a purely correlational analysis of differences in which the effects of other variables on achievement are not controlled. Similarly, while Nushy's student sample was larger than Gibbons' and consisted only of students who had been enrolled in their respective programs for three years, all students in the sample were middle class. Nushy's study also analyzed differences in mean scores and ignored possible confounding variables. The carefulness of Nushy's conclusion that "secondary school

students from middle-class community backgrounds who have participated for three years in an elective, non-graded program of English instruction would be expected to achieve at least as high a level in standardized test measures as would students of comparable backgrounds who had been in a traditional program for three years" (1974, p.3399) is, therefore, highly commendable. But the conclusion contributes little to our understanding of the "true" influence of elective English program structure on English skills of students of diverse backgrounds.

Purpose and Design

This study was undertaken to ascertain the extent to which the kind of English program structure (elective or traditional) to which a student has been exposed for at least three years is associated with his achievement of English cognitive skills.

Since the number of variables potentially associated with English achievement is legion, the decision was made to select several variables, in addition to program structure, most likely associated with English achievement, and to identify, isolate, measure, and record data concerning these variables for high school seniors who had been exposed to either an elective or a traditional program for at least three consecutive school years. Employing these variables (including the program structure variable) as independent variables and

English achievement as the dependent variable, the investigator would compute multiple linear regression equations and interpret the resultant squared multiple correlation coefficients as estimates of the proportion of dependent variable variance accounted for by the independent variables, with particular interest focused on that proportion contributed by the independent variable of program structure.

School and Student Sample

Four Florida high schools were selected for this study. Two of the schools had conducted traditional English programs for at least two years preceding the investigation and were continuing them at the time of the investigation. The other two schools had been offering elective English programs for the same period.¹

In an effort to provide diversity among the independent variables, the schools selected for the study were of varying sizes (school populations), were located in different areas of the state, and served students of differing backgrounds. All four schools had been accredited fully by the Department of Education of the State of Florida and, additionally, by the Southern Association of Colleges and Schools. All four schools comprised ninth through twelfth grades, and seniors in all four schools were enrolled in English classes.

Four hundred ninety-five students constituted the sample population. These students were those who were seniors in

the four high schools in 1975, who had been in attendance at the school from grade ten, and for whom data on all variables were available.

Table 1 provides a summary of certain characteristics of the high schools in the sample and the number of students from each school in the sample.

Insert Table 1 about here

The Variables

The final set of independent variables hypothesized as associating with English achievement numbers fifteen.² They were subdivided into three sets and each assigned an alphabetic designation. The student set consists of five variables: (a) academic aptitude of student (SAPT), (b) sex of student (SSEX), (c) grade point average of student in all subjects (SGPA), (d) grade point average of student in English courses (SGPE), (e) student's attitude toward English as a subject (SATT). The environmental set consists of nine variables: (a) size of school (ESIZ), (b) English faculty average certification (EFAC), (c) English faculty average number of years teaching (EFAT), (d) English faculty average number of years at the school (EFAS), (e) English faculty average teaching load (EFAL), (f) percentage of non-white population in the school district (ENWP), (g) percentage of the school district

Table 1

Summary of Selected Sample High School Characteristics

	Sample School			
	A	B	C	D
State Location	north central	south east	north central	south west
Rural/urban	rural	urban	urban	urban
Total number of high schools in county	3	11	4	12
County population	32,059	348,753	36,290	522,329
School population	882	2,307	787	3,200
Number of senior students	147	380	135	640
Number of teachers	50	87	46	164
Number of English teachers	8	20	6	22
English program structure	tradi- tional	tradi- tional	elec- tive	elec- tive
Number of students in the sample	42	215	78	160

population twenty-five or more years of age who had completed fewer than five years of schooling (EUFY), (h) median number of years of schooling completed by the population twenty-five or more years of age in the school district (EMSY), (i) median annual family income of the population in the school district (EMFI). The program set consists of one variable: program structure--traditional or elective (PRTE).

The dependent variable is, of course, achievement in English, designated DACH.

Quantifying the Variables

Several instruments and sources were used to quantify the variables.

Students' scores on two of the battery of tests in the Florida Twelfth-Grade Testing Program were used as measures: scores on the Aptitude Test for the independent variable SAPT and those on the English Composition Test for the dependent variable DACH. These tests had been administered to the students in the sample during their senior year. Designed to "measure academic aptitude and achievement for all seniors," the tests each had a reported reliability coefficient of .94 (Florida Twelfth-Grade, 1975). Scores were recorded in the form of percentiles.

Variables SSEX, SGPA, and SGPE were recorded or computed from school records for each student in the sample. For computation, the dichotomous variable SSEX was assigned the value

1 for female subjects, the value 0 for male subjects. SGPA and SGPE, with a potential range in values from .00 through 4.00, represents the average grade point earned by a student in all courses completed from the tenth through twelfth grades (SGPA) and the average grade point earned by a student in courses offered by the English Department completed from the tenth through twelfth grades (SGPE).

Independent variable SATT was measured by an original Student Questionnaire on Attitude Toward English as a Subject. On the assumption that a student's attitude toward a school subject is a composite of his perceptions of the degree to which the subject holds his interest, satisfies his needs, and gains his liking, five items on the questionnaire were devised to give the student the opportunity to rate the subject of English on a five-point scale in one of the areas of interest, need, and liking.³ Each student's index of attitude was computed as an arithmetic average of his scaled responses, the indexes ranging from 1 to 5, with 1 representing the highest, most positive attitude and 5 representing the lowest, least positive attitude.

The total number of students enrolled in each school was used as the basis of values for the variable ESIZ. The following values were assigned: fewer than 500 students, the value 1; 500-999, 2; 1,000-1,499, 3; 1,500-1,999, 4; 2,000-2,499, 5; 2,500-2,999, 6; 3,000-3,499, 7; 3,500 or more, 8.

The English faculty variables: EFAC, EFAT, EFAS, and EFAL, were measured by an original English Teacher Questionnaire. All teachers in each school who were teaching one or more English courses responded to seven items. Item 1 asked for the number of years of teaching and Item 2, for the number of years at the school. Items 3, 4, and 5 dealt with the English teaching load: number of English classes taught, number of students taught, and number of English preparations. Items 6 and 7 established degrees earned and types of state certification. The responses from each school were averaged separately for each variable.

Thus, EFAC had a range of values from 1 through 5 (based on responses to Items 6 and 7 jointly): the higher the average degree attainment and the more comprehensive the average certification, the lower the value, since 1 was considered the "highest" value and 5, the lowest. EFAT and EFAS ranged in values from 1 through 6 and represented an average of answers in each school to Items 1 and 2, respectively. The greater the average number of years, either in teaching or at the school, the lower the value. EFAL represented an average of answers in each school to Items 4 and 5 jointly⁴ and ranged in values from 1 through 5, value 1 representing the lightest load and 5, the heaviest.

Since the remaining environmental variables: ENWP, EUPY, EMSY, and EMFI, are all measures of the school district

population and since in Florida the school district is geographically and demographically identical with the county, information recorded for Florida counties in the report from the Bureau of the Census, Washington, D.C., was used as a source. The value for ENWP for each student is the percentage of the total population of the county (in which the student's school is located) that was non-white; for EUFY, the percentage of the population twenty-five or more years of age who had completed fewer than five years of formal schooling. EMFI was assigned values to indicate the median annual family income of the county population in the following ranges: median income of \$6,999 or less, the value 1; \$7,000-\$7,499, 2; \$7,500-\$7,999, 3; \$8,000-\$8,499, 4; \$8,500-\$8,999, 5; \$9,000 or more, 6. The median number of years of schooling completed by persons twenty-five or more years of age in each county was employed as a value for EMSY.

The program variable PRTE was assigned the value 0 if the English program in the student's school was traditional; the value 1 if the program was elective.

Distribution

For each of the nine environmental variables, the values for each school or county (and consequently entered into the multiple regression equation for each sample student in the school) are listed in Table 2.

Insert Table 2 about here

The distribution of the 495 students in the sample on the five independent variables in the student set, the independent program variable, and the dependent variable of English achievement is provided in Table 3. Following are the category codes used to simplify Table 3:

<u>SSEX</u>	<u>Category</u>	<u>Sex</u>
	A	Female
	B	Male

<u>SAPT/DACH</u>	<u>Category</u>	<u>Decile</u>
	A	1
	B	2
	C	3
	D	4
	E	5
	F	6
	G	7
	H	8
	I	9
	J	10

<u>SGPA/SGPE</u>	<u>Category</u>	<u>Range</u>
	A	.00- .49
	B	.50-1.49
	C	1.50-2.49
	D	2.50-3.49
	E	3.50-4.00

Table 2
Distribution of Environmental Variables

	ESIZ	EFAC	EFAT	EFAS	EFAL	ENWP	EUPY	EMFI	EMSY
<u>School</u>									
A	2	2.31	2.75	4.00	3.75	9.4	2.9	4	12.1
B	5	2.55	2.90	4.75	2.83	17.9	3.4	6	12.2
C	2	2.50	2.17	4.17	3.25	2.7	5.4	1	10.7
D	7	2.52	2.00	3.27	2.93	8.5	2.4	3	12.1

SATT	<u>Category</u>	<u>Range</u>
	A	1.0-1.5
	B	1.6-2.5
	C	2.6-3.5
	D	3.6-4.5
	E	4.6-5.0

Insert Table 3 about here

Means and Standard Deviations

The mean and the standard deviation of each variable were computed. Listed in Table 4, they provide a statistical overview of the 495 subjects in terms of the variables.

Insert Table 4 about here

Intercorrelations

The intercorrelation of the entire set of variables is shown in Table 5. There is extensive intercorrelation. Nine of the fifteen independent variables correlate significantly with the dependent variable. Twelve of the independent variables correlate significantly with seven or more of the other independent variables.

Insert Table 5 about here

Table 3
 Distribution of Students on Seven Variables
 (N=495)

		A	B	C	D	E	F	G	H	I	J
<u>Variable</u>											
SAPT	Trad.	19	31	30	24	28	29	26	23	19	28
	Elec.	17	28	12	16	23	25	20	29	31	37
SSEX	Trad.	132	125								
	Elec.	128	110								
SGPA	Trad.	16	111	110	20						
	Elec.	11	70	112	45						
SGPE	Trad.	27	100	102	28						
	Elec.	12	48	132	46						
SATT	Trad.	24	126	91	15	1					
	Elec.	26	102	81	28	1					
DACH	Trad.	24	39	28	19	27	28	26	21	16	29
	Elec.	23	14	18	19	26	27	24	32	30	25

Table 4
Means and Standard Deviations of the Variables
(N = 495)

<u>Variable</u>	<u>Mean</u>	<u>Standard Deviation</u>
DACH	50.59	29.15
SAPT	51.82	29.35
SGPA	2.63	.69
SGPE	2.65	.75
SATT	2.43	.07
SSEX	.52	.49
ESIZ	4.91	1.86
EPAC	2.51	.06
EPAT	2.48	.41
EPAS	3.81	1.21
EPAL	3.00	.26
ENWP	15.57	6.51
EUFY	3.34	.98
EMFI	4.07	1.86
EMSY	11.92	.53
PRTE	.48	.50

Table 5
Correlation Matrix (N = 495)

	SAPT	SGPA	SGPE	SATT	SSEX	ESIZ	EFAC	EPAT	EPAS	EPAL	ENWP	EUPY	EMPI	EMSY	PRTE
DACH	.81	.65	.57	.12	.11	.31	.00	-.17	-.15	-.08	-.35	-.34	.00	.22	.13
SAPT		.59	.50	.24	-.10	.47	.07	-.17	-.11	-.20	-.46	-.48	.08	.37	.11
SGPA			.83	.07	.07	.20	.00	-.22	-.11	-.03	-.22	-.19	-.11	.06	.19
SGPE				-.04	.17	.21	.08	-.24	-.02	-.09	-.15	-.13	-.13	.01	.23
SATT					-.17	.13	.01	-.07	-.04	-.04	-.13	-.13	.00	.09	.05
SSEX						.07	.10	-.01	.08	-.09	.00	-.01	.01	.01	.02
ESIZ							.52	-.30	.15	-.71	-.69	-.80	.22	.65	.22
EFAC								.06	.91	-.94	.24	.03	.30	.12	.02
EPAT									.31	-.13	.30	.11	.86	.39	-.98
EPAS										-.79	.58	.36	.36	-.05	-.19
EPAL											.02	.26	-.48	-.43	.10
ENWP												.95	-.09	-.70	-.14
EUPY													-.33	-.86	.03
EMPI														.77	-.89
EMSY															-.51

$p(r \geq .1461) < .001$

The effect of this intercorrelation of independent variables on the later analysis of multiple regression was to make interpretation more difficult. According to Kerlinger (1973): "The ideal predictive situation [with multiple regression] is when the correlations between the independent variables and the dependent variable are high, and the correlations among the independent variables are low. . . . The more the independent variables are inter-correlated, the more difficult the interpretation." His "most satisfactory" solution to this interpretation problem, however, the calculation of "squared semipartial correlations" (unique contributions), proved impossible in this study, as explained in the appendix.

The Analytical Procedure

Multiple linear regression equations were computed to examine the extent to which (a) all the independent variables jointly and (b) each set of independent variables were associated with the dependent variable. The computer program employed was the BMD02R component of the Biomedical Computer Programs developed by the Health Sciences Computing Facility, University of California at Los Angeles. This program "computes a series of multiple linear regression equations in a stepwise manner" (Dixon, 1970, p.305).

Three series of equations were computed, each series forcing sets of independent variables into the equation in a different order of entry.⁵ The first regression series entered the student (S) set first, the environmental (E) set second, and the program (P) set third. The second series gave initial priority to the E set, then forced entry of the P set, followed by the S set. The third series entered the P set first, then the S set, then the E set. The orders of entry in the series are represented in Table 6 thus: S - E - P, E - P - S, P - S - E.

A note of explanation: The independent variables were grouped into sets (with the program variable PRTE constituting a set of one) not only to isolate the program (target) variable for easier analysis, but also to reduce the numbers of orders of entry of variables into the equation from trillions to six. (The number of possible orders of fifteen variables entered singly, fifteen in each equation, would be 1,307,674,368,000!) Those possible six orders of three sets, requiring computation of six separate multiple regression equations, were S - E - P, S - P - E, E - P - S, E - S - P, P - S - E, and P - E - S. Three of these six were selected and computed to give each set initial priority one time. The need for further computation was obviated by the results described in the ensuing analysis.

Analysis of the Regression Series

In the analysis, the squared multiple correlation coefficient, R^2 (referred to also as a coefficient of determination), is interpreted alternatively as an estimate of (a) the percentage of the dependent variable variance accounted for by the variable(s) in the equation, or (b) the percentage of the dependent variable variance associated with the variable(s) in the equation, or (c) the total contribution⁶ (to prediction) of the variable(s) in the equation to the dependent variable variance, or (d) the proportion of dependent variable variance that the variable(s) in the equation can account for. The statistical significance of any R^2 is evaluated by using an F test.

Insert Table 6 about here

The data in Table 6 reveal that in none of the three series of computations was the complete prediction system of fifteen variables added to the equation, regardless of the order of entry of the sets. In each of the series, the F level proved insufficient for further computation after eight or nine of the fifteen variables had been entered. (At each step, the ^{BMDO2R} BMDO2R program required that a variable meet a criterion F of .01 to be entered into the equation.)

Table 6

COEFFICIENTS OF DETERMINATION RESULTING FROM THREE SERIES OF REGRESSION EQUATIONS

	S - E - P Series			E - P - S Series			P - S - E Series			
	Variable	Order of Entry	R ² After Entry	Increase in R ²	Order of Entry	R ² After Entry	Increase in R ²	Order of Entry	R ² After Entry	Increase in R ²
S Set	SAPT	1	.6567	.6567	4	.6667	.5280	2	.6584	.6414
	SGPA	2	.7035	.0468	6	.7410	.0271	3	.7036	.0451
	SGPE	5	.7332	.0001	8	.7418	.0002	6	.7332	.0000
	SATT	4	.7331	.0007	7	.7416	.0006	5	.7332	.0007
	SSEX	3	.7324	.0289	5	.7139	.0473	4	.7324	.0289
E Set	ESIZ	8	.7418	.0000	2	.1347	.0088			
	EPAC				3	.1387	.0040			
	EPAT	9	.7418	.0000						
	EPAS	7	.7418	.0008						
	EPAL	6	.7410	.0078						
	ENWP				1	.1259	.1259			
	EUFY							8	.7418	.0002
	EMPI							7	.7415	.0083
	EMSY									
P Set	PRTE							1	.0170	.0170

In the S - E - P series, nine variables were entered before computation ceased: the full set of five S variables and four of the E variables (EFAL, EFAS, ESIZ, and EFAT, in that order). These nine variables in concert account for at least 74.18 percent of the variance of the dependent DACH.

In the E - P - S series, eight variables were entered before computation ceased: three environmental variables (ENWP, ESIZ, and EFAC, in that order) and again the full set of five S variables. These eight variables are associated, again, with 74.18 percent of the DACH variance, in spite of the facts that (a) two of the E variables (EFAC and ENWP) are ones that were not included in the S - E - P series and (b) six of the E variables did not meet the criterion for entry into the equation.

In the P - S - E series, eight variables were entered before computation ceased: the P variable, the full set of five S variables, and two other E variables (EMFI and EUFY, in that order). These eight variables again account for 74.18 percent of the variance of the DACH variable.

Only one variable (EMSY) is excluded from the equation in all three series.

Thus, while the total contribution of the complete system of fifteen predictor variables cannot be accurately estimated from these series, it is certain that the complete

system does account for a very substantial proportion of the DACH variance, significant at the .01 level of confidence, since, for an R^2 of 74.18, $F = 174.54$ for eight variables ($F_{.01;8,\infty} = 2.51$) and $F = 154.81$ for nine variables ($F_{.01;9,\infty} = 2.41$).

It is reasonable to assume, in other words, that if only eight or nine of the fifteen variables which constitute the complete system account for a major (74.18 percent) and significant proportion of the dependent variable variance, the complete system would account for at least as substantial and significant a proportion.

The set of variables which makes the largest total contribution to DACH is the S set. In the S - E - P series, at the point at which only the five S variables have been entered (and no E or P variables have been entered), the S set accounts for 73.32 percent of the total variance, significant at $F = 268.72$, $p < .01$ ($F_{.01;5,\infty} = 3.02$). The addition of four other E variables into the equation in this series increases the R^2 value by only .0086.

In the second series, three of the E variables account for 13.87 percent of the total variance, significant at $F = 26.34$, $p < .01$ ($F_{.01;3,\infty} = 3.78$), while neither the remaining six E variables nor the P variable contributes sufficiently to the variance to be entered into the equation.

After the five S variables are included, however, the value of R^2 increases by .6031 to .7418.

Again in the third series, the S set accounts for the greatest percentage of DACH variance. The P variable makes a total contribution of only .0170 (or 1.7 percent). After the inclusion of the S set, the value of R^2 increases by .7162 to .7332, the same coefficient of determination achieved by the set of S variables as its (the set's) total contribution in the S - E - P series, significant at the .01 level of confidence.

It has already been observed that the complete system of fifteen variables can be assumed to account for at least 74.18 percent of DACH variance. The set of five S variables accounts for 98.8 percent of that proportion (.7332 divided by .7418). Obviously, the S set is the set which makes the most quantitatively dramatic contribution to the dependent variable variance.

The individual variable which represents the single greatest proportion of variance is SAPT, accounting alone for almost nine-tenths of the minimum variance of the entire system (.6567 divided by .7418). SAPT alone, in the first series, makes a total contribution of .6567, significant at $F = 943.02$, $p < .01$ ($F_{.01;1,\infty} = 6.63$). When added as the fourth variable in the E - P - S series, SAPT increases the R^2 by .5280 to .6667, significant at $F = 244.98$, $p < .01$

($F_{.01;4,\infty} = 3.32$). When added second, after the P variable in the third series, it increases the R^2 by .6414 to .6584, significant at $F = 474.22$, $p < .01$ ($F_{.01;2,\infty} = 4.61$). No other S variable singly makes as substantial a contribution to the prediction of DACH. Indeed, no one of the other fourteen independent variables in any of the sets makes as substantial a contribution.

The program variable PRTE can singly account for only 1.7 percent of the total variance in the scores in English achievement (P - S - E series). This P variable did not have a high enough F value to be included last (of fifteen) in the S - E - P series or even fourth (after three of the E variables) in the E - P - S series.⁷

Nevertheless, the R^2 of .0170 of the PRTE variable in the third series, at the point at which it is the only variable in the equation, is statistically significant at $F = 8.54$, $p < .01$ ($F_{.01;1,\infty} = 6.63$). Thus, the total contribution of the PRTE variable is a significant one. The extent of the association between PRTE and DACH is obviously very slight, however, in comparison with that, for example, between the SAPT variable and the DACH variable.

Conclusions

Limitations on the interpretation of findings derive from the extensive intercorrelation of the independent variables, intercorrelation which was expected, but which was

also expected to be offset by the calculation of unique contributions. Since, as explained in the appendix, such calculation proved impossible, the formulation of generalizations and implications must proceed with even more caution and responsibility than is usually required. Only such generalizations and implications as can reasonably be substantiated by the data analysis are, therefore, presented here.

The most important (in terms of the objective of this study) inference that can be drawn from the findings is that the structure of an English program in high school seems to make relatively little impact on achievement in English. That is, a student's cognitive growth in English would appear not to be predictable from his participation in either an elective or a traditional program. Although the statistical extent of the association between the program variable and achievement is significant, it is obvious that the association is an extremely unsubstantial one and therefore an extremely insignificant one in a practical sense.

Rather, it seems that the individuals "make the most difference" in English achievement of all the measured variables. A student's sex, academic ability, attitude toward the subject, and scholarship ("grade-making")--as a group--are the greatest predictors of this cognitive growth.

Of these student attributes considered singly, only one appears to be a major and consistent predictor of English

achievement: academic ability. The academic aptitude measure for students is, in every analysis, very substantially associated with their scores on the test of achievement. The extent of this relationship is indeed so large as to render practically insignificant the predictive potential of all other individual variables or groups of variables, even those whose contributions are statistically significant.

In any event, it seems clear that individual differences collectively have a predictive relationship with cognitive growth in English that is considerably stronger than that of program differences and that an individual's academic aptitude has by far the strongest such relationship.

Most of the environmental aspects taken singly do not appear readily interpretable as predictors of English achievement. In fact, the total contribution of only one single environmental variable (the non-white proportion of the county population) is assessed as statistically significant, as well as substantially contributory to cognitive growth in English. Other sociological measures of the population (education and income) were found to be individually unreliable or insignificant as predictors of English achievement, as were the size of the school population and English faculty measures.

Implications for Practice and Research

The findings of this study yield no clear implications for the design of a high school English program, at least in

relation to the program's effectiveness in promoting student growth in English achievement. Whether the program is traditional or elective in structure appears to make little impact on such growth.

Since the findings do indicate, however, that certain individual differences in students do seem to relate strongly to their achievement in English, there may well be a suggestion that certain kinds of individualization are desirable, regardless of other aspects of program structure.

In regard to individual academic aptitude, for example, it might seem likely that any method of grouping students by aptitude or any individualization of instruction according to aptitude would be encouraging of cognitive growth in either a traditional or an elective program. (Individualized instruction need not be individual instruction.) To the extent, then, that an elective program in English individualizes both offerings and instruction, to that extent, perhaps, it should be successful in furthering learning in English.

In addition, the primary conclusion of this study (that elective or traditional program structure is not strongly related to English achievement), when considered in the light of certain prevalent assumptions about elective programs (that they improve student attitudes toward English, provide greater heterogeneity of activities and materials, encourage more student participation in English courses, better meet the

needs and interests of students, and permit desirable specialization by teachers), could be interpreted as implying an overall advantage of the elective program over the traditional. The reasoning would proceed as follows: if there are so many benefits to be derived from an elective program, if there are no disadvantages to an elective program, and if the program structure makes no difference in learning, then the elective program is preferable.

The logic inherent in such reasoning contains no fallacies. The difficulty, of course, lies in the "truth" of the conditions. While a few of the assumptions about elective programs listed above have been objectively verified to some degree, most have not, to any degree. Clearly, further research is needed to examine the relationships between elective programs in English and (a) needs, interests, attitudes, and goals of students, (b) benefits to teachers, (c) administrative requirements, (d) costs, (e) curricular goals and objectives, (f) curricular and instructional theory, and (g) classroom atmosphere and dynamics--to name the most important.

The findings and conclusions of this study also indicate a need for further research into the question of elective programs and their influence on learning in English. While exact replication of this study would not be desirable, because of the difficulties in interpretation arising from certain

procedures and selection, the data collected and reported may be incorporated into other research designs and/or subjected to different analyses for investigation of the question. The investigator encourages such use of the data reported here (as well as the larger body of data for each subject for all variables listed in the dissertation on which this paper is based).

It is also hoped that "true" experimentation of the question of the influence of elective programs (or of any programs) on achievement will be possible in the not-too-distant-future, despite the seemingly overwhelming practical difficulties. The findings of such research should prove invaluable in the making of decisions related to high school programs.

Otherwise, if the trend continues, more and more high schools will be introducing elective programs in English, and the decision to do so will be based, at least in part, on unsupported and unverified assumptions concerning the benefits to be derived from such a program.

If ever it is reasonably confirmed that elective programs at their best enhance achievement, improve attitudes toward English, provide for individualization, promote morale among teachers and students, and meet the needs and interests of students--and at their worst make little or no difference

(from traditional programs) in any of the above--then
elective programs in English can be established as
knowledgeable options.

Appendix
Total and Unique Contributions

It is necessary to append a comment on the difference between total contribution and unique contribution, for clarification. The total contribution to the dependent variable variance of an individual variable or set of variables is estimated by R^2 as the proportion of dependent variable variance for which that variable or set of variables can account. The unique, or independent, contribution of an individual variable or set of variables is an estimate of how much less dependent variable variance is explained if the individual variable or set of variables is omitted from the equation. A unique contribution of, say, variable X can be determined only by computing (a) the R^2 of the complete prediction system, (b) the R^2 of the complete system except for X, and (c) the difference between the two. The difference is the unique contribution of X.

The use of both measures (total and unique) would be desirable in determining the extent of association between independent variables and the dependent variable. In the present study, however, as the report of the analysis makes clear, unique contributions of any individual variables or sets of variables could not be determined, since in no case was the entire system of all fifteen variables entered into the equation by the computer. Thus, in this study only total contributions are interpreted.

References

- Applebee, A. N. Tradition and reform in the teaching of English. Urbana, Illinois: National Council of Teachers of English, 1974.
- Bottosto, S. S. Relationship between county-wide measures of certain socio-economic factors, intelligence, and academic achievement of high school seniors in Florida (Doctoral dissertation, University of Florida, 1959). Dissertation Abstracts, 1959, 20, 1931.
- Carlsen, G. R., & Conner, J. W. New patterns from old molds. English Journal, April 1962, 51, 244-249.
- Di Stefano, P. P. A comparison of student attitudes toward traditional and diversified elective English offerings (Doctoral dissertation, Ohio State University, 1974). Dissertation Abstracts International, 1974, 35, 2642A.
- Dixon, W., ed. - BMD: Biomedical computer programs. Berkeley, California: University of California Press, 1970.
- Donlan, D. M. Dilemma of choice: Revolution in English (Doctoral dissertation, University unknown, 1972). Dissertation Abstracts International, 1972, 32, 6740A.
- Florida twelfth-grade testing program. Report No. 1-75. University of Florida, 1975.

- Gibbons, J. M. A study of attitudes and performance of high school students enrolled in elective English programs (Doctoral dissertation, University of Southern California, 1973). Dissertation Abstracts International, 1973, 33, 2742A.
- Graves, R. L. English elective curricula and how they grew. Education Forum, January 1974, 38, 195-201.
- Hillocks, G., Jr. Alternatives in English: A critical appraisal of elective programs. Urbana, Illinois: ERIC Clearinghouse on Reading and Communication Skills, 1972.
- Jaekle, A. M. Safe for diversity: Another approach to the English curriculum. English Journal, February 1967, 56, 222-226.
- Kelly, S. P. Goals and objectives for the teaching of English. English Education, Fall 1972, 4, 16-26.
- Kerlinger, F. N. Foundations of behavioral research. New York: Holt, Rinehart and Winston, 1973.
- Klang, M. To vanquish the deadliest game: A new English curriculum. English Journal, October 1974, 53, 504-515.
- Moore, R. M. Selected community and institutional characteristics of Florida public schools related to twelfth grade test scores (Doctoral dissertation, University of Florida, 1968). Dissertation Abstracts International, 1968, 30, 102A.

- Morton, T. H., & Deidolori, M. An electives program in a small high school? It works! English Journal, October 1971, 60, 952-956.
- Nushy, J. M. A comparative analysis and evaluation of student achievement and attitude in a secondary elective and conventional English program (Doctoral dissertation, University of Southern California, 1974). Dissertation Abstracts International, 1974, 35, 3399A.
- Smith, J. E., Jr. 180 days: observations of an elective year. English Journal, February 1971, 60, 229-235.
- Small, R. C., Jr. Framework for diversity: The elective English curriculum. The High School Journal, November 1972, 56, 93-107.
- Weise, D. F. Nongrading, electing, and phasing: Basics of revolution for relevance. English Journal, January 1970, 59, 122-130.
- Williams, G. L. English electives evaluated. Clearing House, April 1973, 47, 469-471.

Footnotes

¹The designations "elective" and "traditional" were operationally defined for this study on the basis of criteria relating to (a) graduation requirements in English, (b) length of courses, and (c) non-grading of courses.

²These variables were selected on the basis of suggestions from secondary English teachers, teaching interns in secondary English, professors of English education, and graduate students of English education; and on the basis of research findings (Bottosto, 1959; Moore, 1968).

³The factors influencing students' attitudes toward a school subject are no doubt diverse and diverse, in all probability including at least the home and family attitudes and environment, the like (or dislike) of a particular teacher, and the choice of a career. For the purposes of this study, however, the etiology of a student's attitude toward English is considered irrelevant.

⁴Item 3, number of English classes taught, was included in the questionnaire solely for the purpose of establishing that respondents were indeed teaching at least one English class. Since the response to this item does not indicate the total number of classes taught nor the number of students in each class, it was deemed irrelevant to an assessment of teacher work load.

⁵See Kerlinger (1973) or others for a discussion of the effect of order in regression computation.

⁶See the appendix for an explanation of "total contribution" and "unique contribution."

⁷That is, even when "forced" into the equation after the E set, it was not added because its F ratio, if it had been added, would not have satisfied the .01 criterion.